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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,936	11/28/2001	Sadashige Sugiura	60188-121	7332
20277	7590	09/17/2004	EXAMINER	
MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			HU, SHOUXIANG	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/994,936

Applicant(s)

SUGIURA ET AL.

Examiner

Shouxiang Hu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-12 is/are pending in the application.
- 4a) Of the above claim(s) 2,6 and 8-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. This application claims priority under 35 U.S.C. 119 based on priority application serial No. 2000-360526, filed on November 28, 2000, in Japan.

Election/Restriction

2. Claims 2, 6 and 8-12 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, in view of the previous office action. Accordingly, claims 1-6 and 8-12 are pending in this application; and claims 1 and 3-5 remain active in this Office action.

Drawings

3. The new corrected drawings of Figs. 3A-3D were received on January 16, 2004. These drawings are approved.

Claim Objections

4. Claims 1 and 4-5 are objected to because of the following informalities and/or defects:

Claim 1 recites the term of "test pad", but fails to clarify whether the recited test pad is formed on the chip IP or on the wiring substrate.

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Claim 1 further recites the term of “switching element”, but fails to clarify whether the recited switching element is formed on the wiring substrate.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1 and 3-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites the subject matters that “the switching element turning off transmission of a signal from the test pad while testing an electrical connection between the circuit of the chip IP and at least one of the wires”. However, such subject matters are not fully supported by the original disclosure, which states that “the switching transistors 29 and 30 are turned off upon receiving a test mode signal Stm” (see the bottom paragraph on page 15 of the instant specification). It is not clear what kind of signal could be transmitted from the pad or pads (27 and/or 28); how the transmission of such signal from the pad(s) could be turned off by the switching element with what

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type of test mode signal; and how such turnoff would affect the testing of the electrical connection between the circuit of the chip IP and which one of the wires.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 3, insofar as being in compliance with 35 U.S.C. 112, are rejected under 35 U.S.C. 102(e) as being anticipated by Lin (US 2001/0000013 A1).

Lin discloses a semiconductor device (See Figs. 3 and 4d), comprising: a semiconductor wiring substrate (320 and/or 365), which can be naturally regarded as a wiring substrate to the chip of "CHIP 1" since as it serves as the underlying mounting substrate for CHIP 1; a plurality of wires in the wiring substrate and connected to pads (395, 381, 377, 370, 393, 395, and/or CHIP PAD of CHIP 1 in Fig. 4c); an IP chip (335), which is regarded here as inherently having intellectual property and including a circuit having semiconductor device elements arranged therein; and a switching element (in 360) that can naturally turn off a signal transmission according to a test mode selection, wherein at least one of the test pads in Lin (such as 382, 370 and/or 393) can be naturally capable of functioning as a test pad for testing an electrical connection

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between the circuit of the IP chip (CHIP 1) and the wires, since it is a test pad and is electrically connected to both of the circuit in CHIP 1 and the wires in the wiring substrate. Furthermore, it is noted that the limitations regarding the terms of "turning off transmission" and "testing an electrical connection between the circuit of the chip IP and at least one of the wires" are intended-use limitations. However, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Regarding claim 3, the test pad in Lin is a portion of a circuit that includes at least one of the wires that is exposed on a surface of the semiconductor wiring substrate.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 4 and 5, insofar as being in compliance with 35 U.S.C. 112 and as being best understood in view of the above claim objections, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Voldman (US 5,625,280).

The disclosure of Lin is discussed as applied to claims 1 and 3 above.

Lin does not expressly disclose that the circuit in the chip can have a diode connected to a power supply line and a node and then to two test pads. However, one of ordinary skill in the art would readily recognize that a circuit in a chip can be protected by a diode, as evidenced in Voldman. Voldman (see Figs. 1-3, and col. 5, lines 19-24) teaches to protect a circuit from ESD damages by connecting a protection diode (27 or 28) between a node (26) and a line (a power supply line¹⁰; or a ground line 13), wherein the node and the line are connected respectively to pads (26) and 11 (or the bottom left one).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the pad-connected protection diode of Voldman into the device of Lin, so that a semiconductor device with better chip protection would be obtained. In addition, it is noted that the term regarding "through which a forward current flows" when a voltage is applied is an intended-use limitation; and, such a diode in the collectively taught device would be naturally capable of carrying a forward current when a voltage with an appropriate polarity is applied to the power supply line or the ground line.

Response to Arguments

9. Applicant's arguments with respect to claims 1 and 3-5 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shouxiang Hu whose telephone number is 571-272-1654. The examiner can normally be reached on Monday through Thursday, 7:30 AM to 6:00 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SH
September 13, 2004



SHOUXIANG HU
PRIMARY EXAMINER